



US005380709A

United States Patent [19]

Ueno et al.

[11] **Patent Number:** **5,380,709**[45] **Date of Patent:** **Jan. 10, 1995**[54] **PROSTAGLANDINS E AND ANTI ULCERS
CONTAINING SAME**[75] **Inventors:** **Ryuzo Ueno, Nishinomiya; Ryuji
Ueno, Kyoto; Ichie Kato, Kawanishi;
Tomio Oda, Itami, all of Japan**[73] **Assignee:** **K.K. Ueno Seiyaku Oyo Kenkyujo,
Osaka, Japan**[21] **Appl. No.:** **53,561**[22] **Filed:** **Apr. 28, 1993****Related U.S. Application Data**[63] Continuation of Ser. No. 681,031, Apr. 5, 1991, Pat.
No. 5,225,439, which is a continuation of Ser. No.
406,830, Sep. 12, 1989, abandoned, which is a contin-
uation-in-part of Ser. No. 149,445, Jan. 28, 1988, aban-
doned.[30] **Foreign Application Priority Data**Jan. 28, 1987 [JP] Japan 62-18820
Mar. 18, 1987 [JP] Japan 62-65352[51] **Int. Cl.⁶** **C07C 405/00; A61K 31/557**[52] **U.S. Cl.** **514/530; 514/573;
560/121; 562/503**[58] **Field of Search** **560/121; 562/503;
514/530, 573**[56] **References Cited****U.S. PATENT DOCUMENTS**

3,836,378 9/1974 Samuelsson 560/121

OTHER PUBLICATIONS

Anggard Acta Physiol Scand 66 509 (1966).

Jones Proceedings of the BPS 17-19 Dec. 1975 p. 340p.

Primary Examiner—Robert Gertstl*Attorney, Agent, or Firm*—Sughrue, Mion, Zinn,
Macpeak & Seas

[57]

ABSTRACT

The novel 13, 14-dihydro-15-keto prostaglandins E of the invention have remarkable preventive effects against ulcers. Further, the novel 13,14-dihydro-15-keto prostaglandins E of the invention have an advantage that they have none of side effects which prostaglandin E intrinsically has, or can remarkably reduce such effects of the prostaglandin E. Therefore, the novel 13, 14-dihydro-15-keto prostaglandins E of the invention are effective for animal and human use for treatment and prevention of ulcers, such as duodenal ulcer and gastric ulcer.

12 Claims, 57 Drawing Sheets